LIVING ON THE EDGE:
Endangered Species In Iowa

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September 1992

This booklet is printed on LaSierra Gloss, a recycled paper containing at least 10 percent post-consumer waste. The ink is soy-based.

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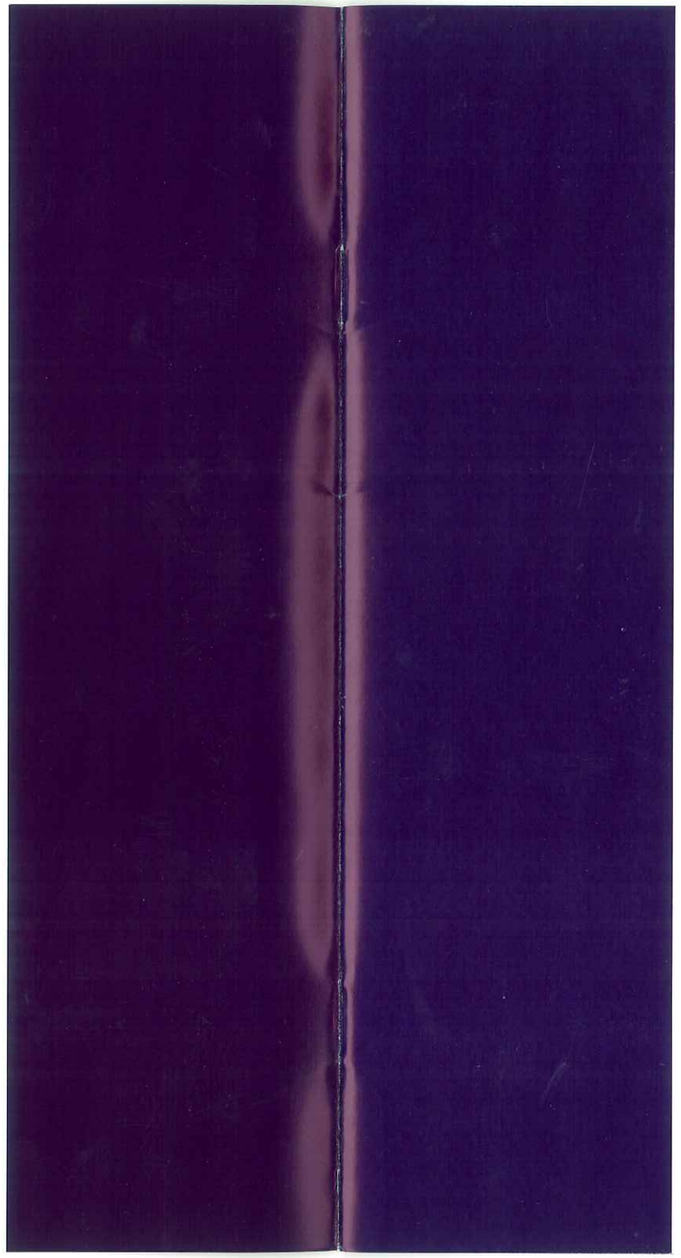
Funding provided by the U.S. Environmental Protection Agency and the Iowa Department of Agriculture and Land Stewardship

Acknowledgements:
The following individuals reviewed portions of this publication:

John Pearson, Iowa Department of Natural Resources
Gaye Wiekierak, Iowa Department of Natural Resources

Design: Tammra K. Pavlicek, Iowa Department of Natural Resources

Cover Photo: Interior Least Tern by NEBRASKAland Magazine/Nebraska Game and Parks Commission



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INTRODUCTION

Iowa has changed greatly since becoming a state in 1846. The prairies that helped develop the highly productive soils have been reduced by more than 99 percent. About 95 percent of the state's prairie pothole wetlands have been drained and nearly 75 percent of the original forests and savannas are gone. These changes and other factors such as the channelization of rivers and streams, chemical pollution, soil erosion and overgrazing have contributed to the loss or degradation of suitable habitat for numerous plant and animal species.

This booklet provides information about federally listed endangered and threatened plants and animals known to presently occur in Iowa. Conserving these species requires a coordinated effort by public agencies, private organizations and landowners.

A number of these species, notably those listed in this booklet, have declined to the point that they are threatened or endangered with extinction. It is very important that we maintain the existing habitat remnants for these plant and animal species if they are to remain a part of Iowa's flora and fauna for future generations.

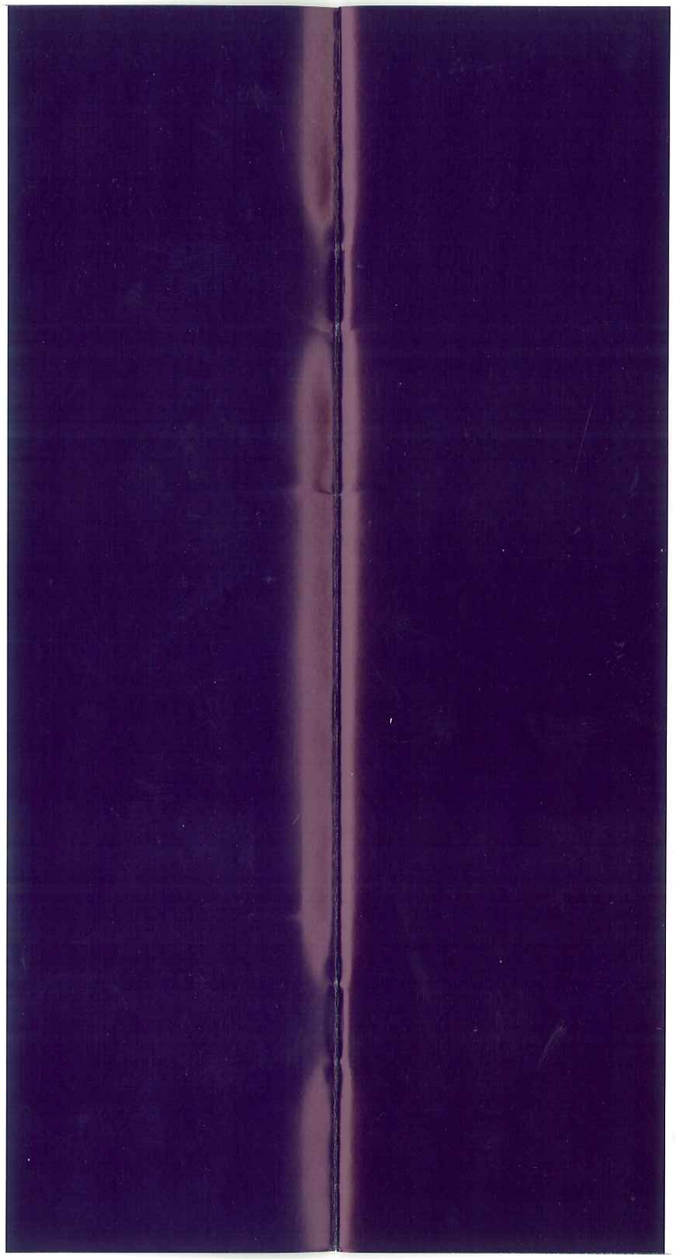
A question often asked is, *"Why should we be concerned about these plants and animals?"* Each plant and animal species is unique because it may represent solutions to biological problems. Some of these solutions may be of use to us today or in the future. Examples of the importance of plants to us include numerous medicines and genetic resources of food and fiber plants. The genetic diversity of these plants provides plant breeders with the means to help crops cope with disease, insects and drought.

Individual species of plants and animals also contribute to the maintenance of other species within a community. Thus, the loss of what appears to be an unimportant species may result in the loss of one or more species which are very important to us. By allowing species to become extinct, we are making decisions that cannot be reversed.

The Endangered Species Act, passed in 1973 by the U.S. Congress, provides for the protection of plants and animals that are endangered or threatened with extinction. Federal agencies are required to ensure that any actions they authorize, such as the registration of pesticides by the U.S. Environmental Protection Agency, do not harm endangered or threatened species or their habitat.

The U.S. Environmental Protection Agency is responsible for ensuring that the necessary steps be taken to eliminate or minimize any threats to endangered or threatened species by the use of pesticides.

The Endangered Species Protection Program of the U.S. Environmental Protection Agency in Iowa is a cooperative federal and state agency project. The U.S. Fish and Wildlife Service, the Iowa Department of Agriculture and Land Stewardship, the Iowa Department of Natural Resources, and the Iowa State University Cooperative Extension Service are working with the U.S. Environmental Protection Agency to develop a state-initiated plan for several plant species and to provide information about endangered and threatened species. This program has been designed to protect these species from pesticide contamination and at the same time reduce undue restrictions for landowners.



It should be noted that while this booklet covers only federally listed plant and animal species, there is also a state list of endangered species. All federally listed species are included in the state endangered species list. The state list also includes plants and animals which have declined in Iowa but may be doing well in other states. Although only a few of the state-listed species are included in this booklet, the system developed to protect the federally listed species will also benefit a number of state-listed species.

FEDERALLY LISTED PLANT AND ANIMAL SPECIES IN IOWA

Common Name	Scientific Name	Status
Animals		
Peregrine Falcon	*Falco peregrinus*	Endangered
Bald Eagle	*Haliaeetus leucocephalus*	Endangered
Interior Least Tern	*Sterna antillarum*	Endangered
Piping Plover	*Charadrius melodus*	Threatened
Indiana Bat	*Myotis sodalis*	Endangered
Pallid Sturgeon	*Scaphirhynchus albus*	Endangered
Iowa Pleistocene Land Snail	*Discus macclintocki*	Endangered
Higgins' Eye Pearly Mussel	*Lampsilis higginsi*	Endangered
Plants		
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened
Eastern Prairie Fringed Orchid	*Platanthera leucophaea*	Threatened
Mead's Milkweed	*Asclepias meadii*	Threatened
Prairie Bush Clover	*Lespedeza leptostachya*	Threatened
Northern Wild Monkshood	*Aconitum noveboracense*	Threatened

The term *endangered species* means any species in danger of extinction throughout all or a significant portion of its range.

The term *threatened species* means any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

County distribution maps are included for each species. A species may occur at only one site in a county even though the entire county is shaded.

Peregrine Falcon

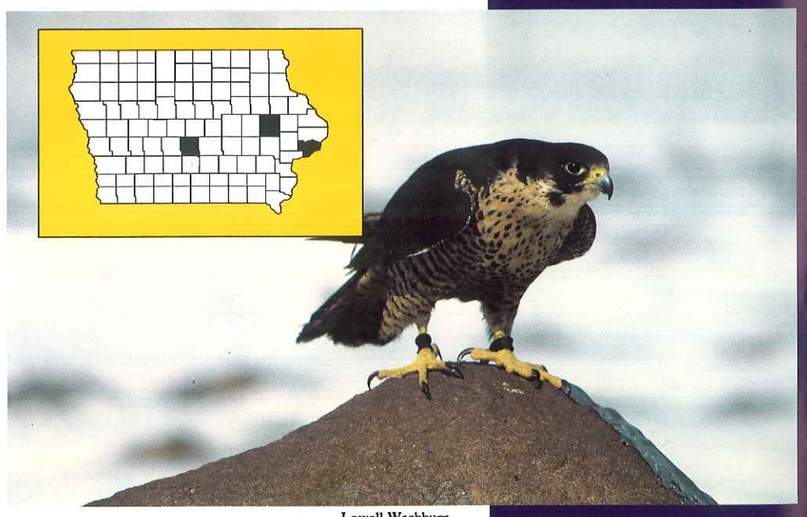
Falco peregrinus
Status: Endangered

Description: The peregrine falcon has a dark head which appears hooded and is about the size of a crow -- 16 inches long with a wingspread of about 40 inches. The female is larger than the male. Adult birds are slate blue on the back and have white- to buff-colored throats. The belly is also white or buff with some black bars.

Habitat and Habits: The peregrine falcon eats pigeons, shorebirds, waterfowl and songbirds. It rarely eats mammals and insects. Peregrines hunt while soaring or from perches, diving vertically and striking birds at high speeds. These impressive dives are called stoops. Speeds of 200 mph have been recorded during a stoop. Nest sites are often on rocky cliffs or tall buildings in cities, but are also found in tree hollows and on tall bridges. The clutch size ranges from two to six eggs but is usually three to four with an incubation period of about 30 days. The young peregrines leave the nest after 35 to 42 days.

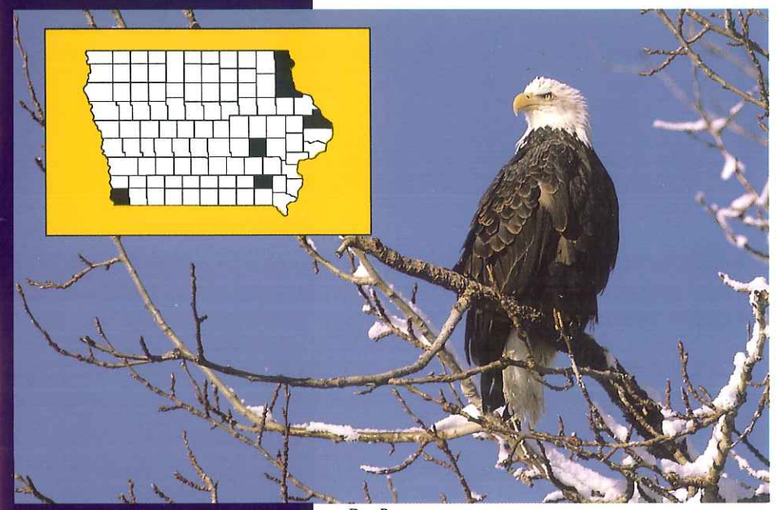
Distribution: Peregrine falcons occur worldwide in arctic and temperate areas. Historically, they primarily nested in Iowa on cliffs along the Mississippi River and the Cedar River.

Conservation Efforts: In 1989 the Iowa Department of Natural Resources' Nongame Program initiated a reintroduction project for peregrines in Iowa. Twenty-three birds were released in Cedar Rapids in 1989 and 1990, 19 in Des Moines in 1991 and eight were released in Muscatine in 1992. The young birds are acquired from licensed breeding facilities. When the young birds are about 35 days old and can tear their own food, they are taken to the release site. There the young peregrines are held in a large "hack" box and monitored until they learn to fly and hunt. The goal is to establish five nests in Iowa by the year 2000. The first breeding attempts in nearly 30 years occurred in Cedar Rapids, Des Moines and Davenport in 1992.



Lowell Washburn

Reasons for Listing: Use of DDT and similar pesticides caused a drastic decline of peregrines in the United States and Europe through the 1970s.



Don Poggensee

Bald Eagle

Haliaeetus leucocephalus
Status: Endangered

Description: The bald eagle is well known as our national symbol. A large bird measuring 31 to 37 inches in length, the wingspan of the bald eagle is six to seven and one-half feet. Adult birds have dark brown bodies that contrast sharply with the white head and tail. The eyes and beaks of adults are yellow. The birds become adults at four to five years. Immature bald eagles have dark plumage with splotches of white on the underwings and tails. The eyes and beaks of the immature birds are brown. Immature bald eagles are often confused with large hawks or golden eagles.

Habitat and Habits: The bald eagle is generally found near water such as rivers, reservoirs and lakes. Fish is the primary food item, but they also feed on carrion such as waterfowl and mammals.

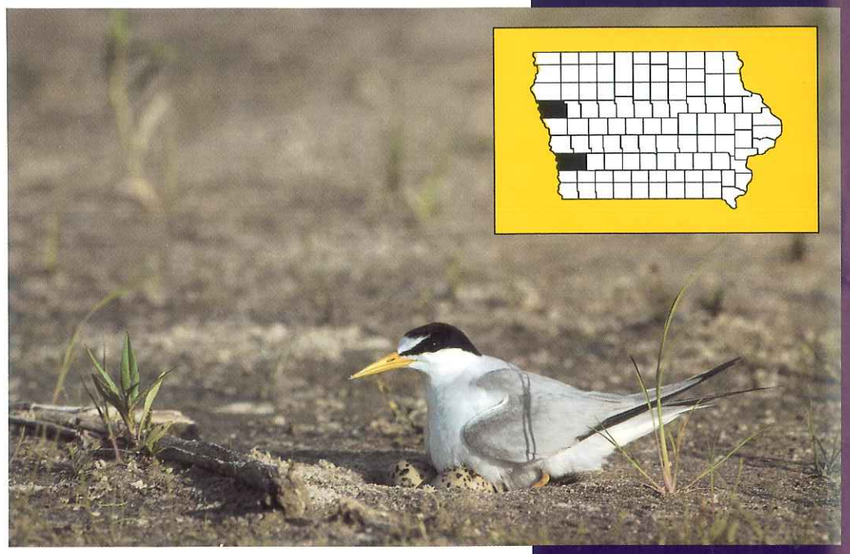
Nests in Iowa are initiated in February or March with pairs often using the same nest year after year. The nests are normally in large trees and made of large sticks and other vegetation. The average nest is four feet in diameter and about three feet deep. The female generally lays two eggs, but several nests in Iowa have had three. Incubation is from 35 to 40 days. The young birds do not leave the nest until almost three months old.

Distribution: The bald eagle occurred throughout Canada and the United States and was a regular nesting bird in Iowa at the time of settlement. The last known nesting was believed to have occurred in 1864, until nesting was again documented in the late 1970s. In 1991 there were 11 nesting attempts with eight being successful, producing 18 young. Nesting attempts have been documented in six counties in Iowa during the last 10 years.

Reasons For Listing: The banning of DDT and other organochlorine pesticides in the early 1970s has helped the bald eagle population make a strong comeback. The accumulation of organochlorine pesticides in fish upon which the bald eagles were feeding, was a major reason for this species' decline. These pesticides interfered with the ability of the birds to produce viable eggs. Loss of nesting and wintering areas due to development along rivers also contributed to the population decline. Indiscriminate shooting was probably responsible for keeping populations low until the passage of the Bald Eagle Act of 1940, which provided increased protection.

Interior Least Tern

Sterna antillarum
Status: Endangered



NEBRASKAland Magazine/Nebraska Game and Parks Commission

Description: Very small -- at eight and one-half to nine and one-half inches -- the interior least tern has a black cap and black line through the eye when in breeding plumage. They have a deeply forked tail with the outer tail feathers being white. During winter the adults have a blurred head pattern with mixed black and white feathers.

Habitat and Habits: The interior least tern, like the piping plover, nests on sandbars and barren areas along rivers. The nests are shallow depressions. The normal clutch size is three eggs. The interior least tern usually nests in small colonies. Nesting occurs from early June through early August. Incubation is about 20 days and the chicks fledge about 20 days after hatching. Terns feed on small fish and crustaceans.

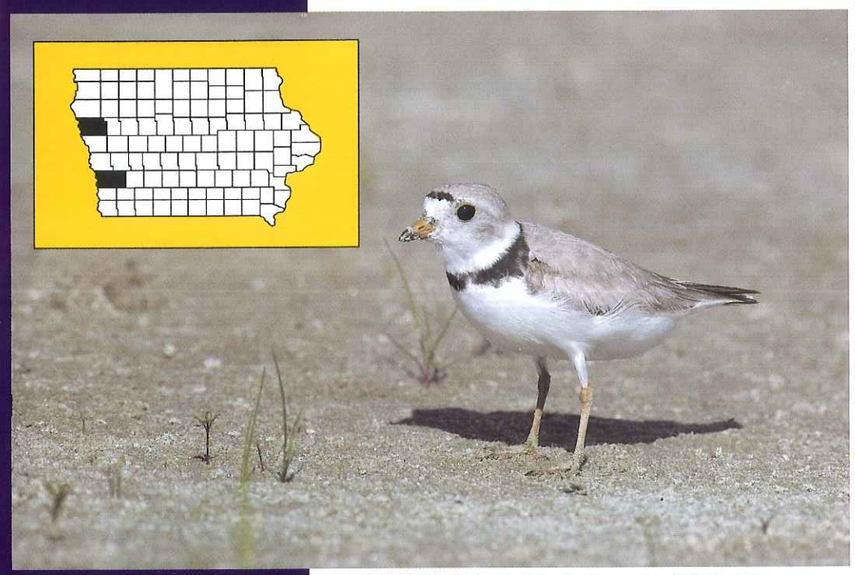
Distribution: Nesting occurs in a broad portion of the Central United States. In Iowa the interior least tern currently nests at two sites -- one near Council Bluffs and one near Sioux City. Both sites are fly-ash deposits from power plants.

Conservation Efforts: The power company has worked with public and private conservation organizations to protect the Iowa nesting areas. Continued monitoring of annual nesting success has helped to identify additional protection measures for the areas.

Reason for Listing: The loss of nesting habitat along the rivers due to construction of reservoirs, channelization and changes in water flows has caused the decline. Construction of dams for irrigation and navigation has inundated nesting habitat and altered natural flows of the river. Previously, periodic flooding in the spring built new sandbars, and water levels dropped prior to nesting. Disturbance by people and domestic animals has also contributed to reduced nesting success.

Piping Plover

Charadrius melodus
Status: Threatened



NEBRASKAland Magazine/Nebraska Game and Parks Commission

Description: A small pale-colored shorebird -- six to seven inches -- the piping plover has a narrow black breastband which is often incomplete. During the breeding season, the adults have orange legs and a black bar across the forehead.

Habitat and Habits: The piping plover nests on sandbars in rivers and sandy beaches bordering lakes, reservoirs and the Atlantic Ocean. Nests are placed above the recent high-water mark and are usually in bare to very sparsely vegetated areas. Normal clutch size is four eggs and the incubation period is about 27 days. Both parents take care of the young. Young birds are able to fly in about 30 days. Piping plovers in the Midwest feed on insects, crustaceans and mollusks on the edge of the water on sandbars and beaches.

Distribution: The historical and current distribution of breeding piping plovers includes the following three areas: the Atlantic Coast from Newfoundland to North Carolina; the Great Lakes; and the Northern Great Plains of the United States and Canada.

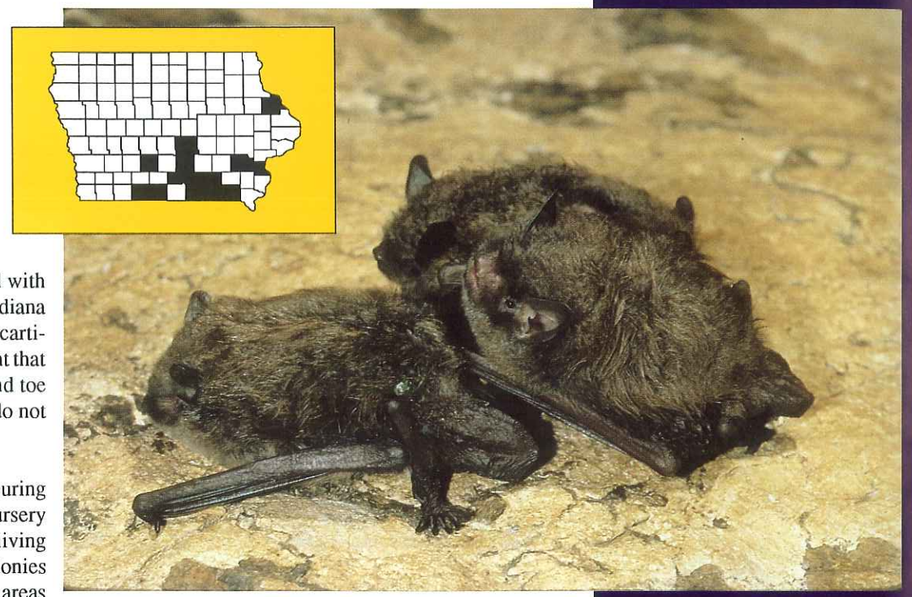
In Iowa there are only two known breeding sites: one near Council Bluffs and one near Sioux City. Both sites are fly-ash deposits associated with power plants. Historically, piping plovers nested in at least two other locations along the Missouri River. The loss of sandbar habitat to channelization and stabilization of the river destroyed this nesting habitat.

Conservation Efforts: The owners of these areas will be encouraged to continue to protect the two known nesting areas, and plans are being prepared to mitigate the loss of habitat along the Missouri River.

Reasons for Listing: The loss of sandbars along the Missouri River due to channelization and stabilization of the river has destroyed the natural nesting sites in Iowa.

Indiana Bat

Myotis sodalis
Status: Endangered



Merlin D. Tuttle, Bat Conservation International

Description: The Indiana bat is a small dark gray or grayish brown bat with a wingspan of nine and one-half to ten and one-half inches. It is easily confused with the little brown bat. The Indiana bat has a keeled calcar -- a cartilaginus spur of the ankle joint that extends toward the tail -- and toe hairs which are sparse and do not extend beyond the claws.

Habitat and Habits: During summer, females form nursery colonies under the bark of living or dead trees. Nursery colonies are often located in wooded areas along streams or rivers or in upland forest areas. The females have only one young during June. The Indiana bat is insectivorous and feeds on a variety of small insects. During winter, Indiana bats hibernate in caves and mines. They usually hibernate in large dense clusters of up to several thousand individuals.

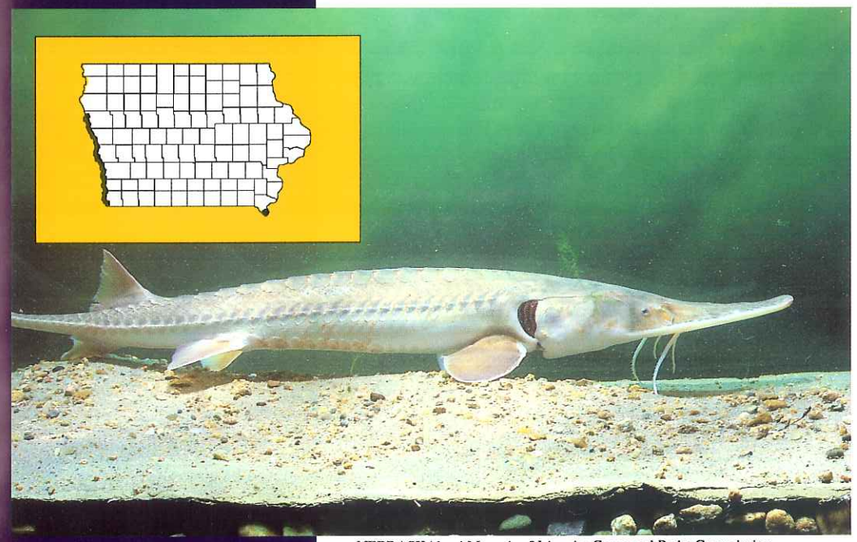
Distribution: The range of the Indiana bat is the eastern United States and as far west as Iowa, Kansas and Oklahoma. In Iowa, the Indiana bat has been reported in 13 southern Iowa counties and Dubuque County in northeast Iowa.

Conservation Efforts: The large wintering sites will continue to be protected. Information about summer distribution and habitat requirements is being collected.

Reasons For Listing: More than 85 percent of the Indiana bat population hibernates in just seven locations in Indiana, Kentucky and Missouri. Natural- or human-caused disturbances to one or more of these sites would cause a significant reduction in the Indiana bat population. The clearing of forest areas in the summer range of the species has also reduced suitable maternity areas.

Pallid Sturgeon

Scaphirhynchus albus
Status: Endangered



NEBRASKAland Magazine/Nebraska Game and Parks Commission

Description: The pallid sturgeon is one of the largest fish species to occur in the Missouri and lower Mississippi rivers with a maximum weight of nearly 85 pounds. It has a flattened snout with the mouth located back from the end of the snout. It is much lighter in color than the shovelnose sturgeon. The skeletal structure of this species is primarily cartilaginous.

Habitat and Habits: The pallid sturgeon is a species that occurs in large rivers. It is found in free-flowing areas of rivers with rocky or sandy bottom areas. They inhabit the bottom in areas of strong current.

The biology of the pallid sturgeon is not well known. Spawning occurs during summer, but there is no detailed description of spawning areas. Aquatic insects and small fish of various species are the food of the pallid sturgeon.

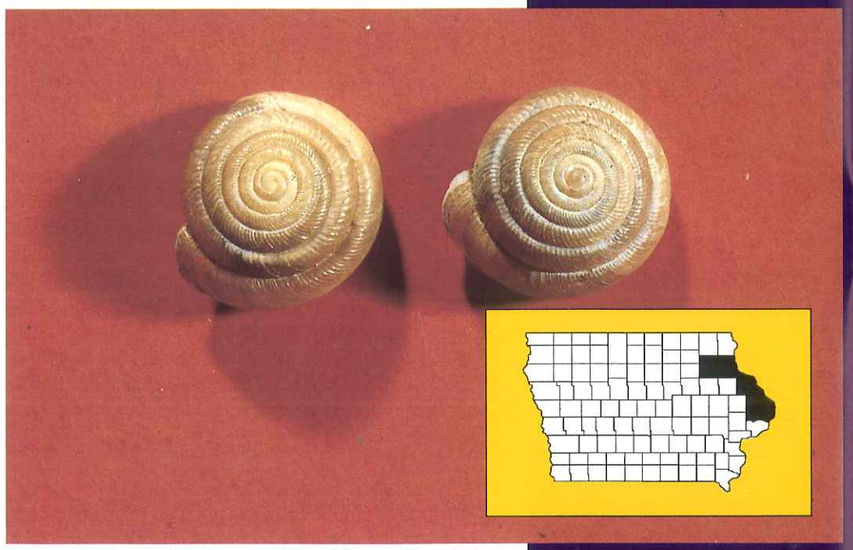
Distribution: The pallid sturgeon occurs in the Missouri and the lower Mississippi rivers. There is also a record of a single immature fish caught in the Mississippi River at Keokuk, Iowa, in 1930.

Conservation Efforts: Studies are being initiated to provide better information on the life history and habitat requirements, develop propagation methods and population status for the pallid sturgeon.

Reasons For Listing: The pallid sturgeon population appears to have declined sharply during the last 30 years. This decline has coincided with numerous habitat modifications on the Missouri and Mississippi rivers. These modifications have included the construction of numerous dams, changes in water flows, reduction of habitat diversity and possible loss of spawning habitat.

Iowa Pleistocene Land Snail

Discus macclintocki
Status: Endangered



Iowa Department of Natural Resources/Ron Johnson

Description: The Iowa Pleistocene land snail is about one-fourth inch in diameter as an adult. The shell is tightly coiled and almost dome-shaped. Shell color is brown or greenish-white.

Habitat and Habits: This species is limited to cold air talus slopes. Air circulation and water infiltration into fractured rock formations produce underground ice which slowly melts during summer, producing a constant flow of cold moist air which filters through the rock talus. These slopes provide a habitat that is unique because temperature changes are much less than adjacent areas both during summer and winter. The Iowa Pleistocene land snail may produce multiple broods with the average number of eggs being three. The eggs are laid under fallen logs, in moist rock crevices and in the soil. Because of the patchy distribution of cold air slopes, there is little possibility for natural colonization or recolonization of slopes presently devoid of snails.

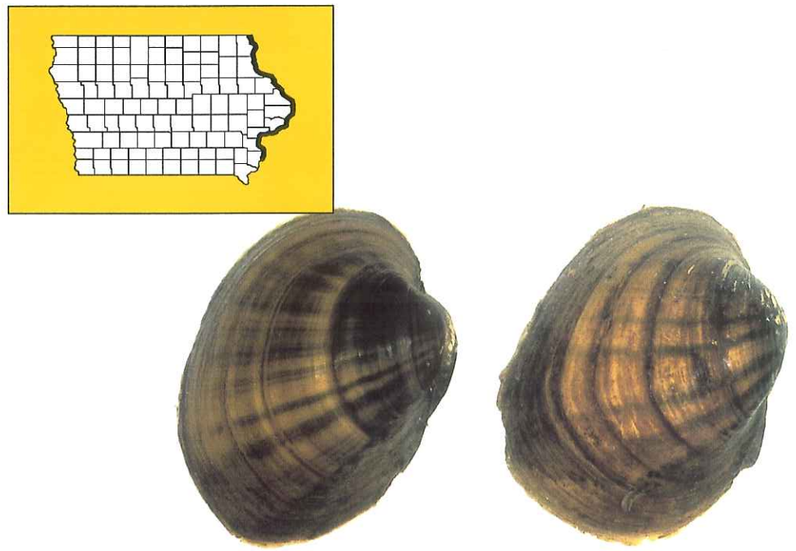
Distribution: The Iowa Pleistocene land snail is currently known only in Illinois and Iowa, with all but one of the known populations occurring in Iowa. There are about 30 known sites for this species in Iowa.

Conservation Efforts: The U.S. Fish and Wildlife Service, the Iowa Department of Natural Resources, and The Nature Conservancy are working with landowners and are acquiring the most important slopes to ensure the long-term survival of this species.

Reasons For Listing: Human-caused disturbances such as overgrazing, logging, road construction and quarrying have all reduced the habitat available for the Iowa Pleistocene land snail.

Higgins' Eye Pearly Mussel

Lampsilis higginsi
Status: Endangered



U.S. Fish and Wildlife Service

Description: This freshwater mussel has a heavy yellow or brown shell often with faint to quite distinct green rays. The shell is oval or elliptical in shape with a difference between males and females. The male shell is nearly oval, while the female shell has a more irregular shape.

Habitat and Habits: The Higgins' eye pearly mussel is thought to be a species that occurs in low numbers throughout its range. It prefers large rivers with deep water. This species has been reported from several types of substrate -- sand/gravel, gravel and clay/sand.

Very little is known of the reproduction and early life history for Higgins' eye pearly mussel. Freshwater drum and sauger were thought to be the host species of fish for the larvae (glochidia). However, more recent studies indicate that largemouth bass, smallmouth bass, yellow perch and walleye are suitable host species. Like other species of freshwater unionid mussels, the Higgins' eye pearly mussel has a parasitic larval stage. Larvae (glochidia) are released by the female and they must attach and become encapsulated in the gills or fins of host fish species before they can develop to the juvenile stage.

Distribution: The Higgins' eye pearly mussel is known from the Upper Mississippi River. Historically, this species also occurred in the Cedar, Wapsipinicon and Iowa rivers in Iowa, but is no longer found in these rivers.

Conservation Measures: Protection of known Higgins' eye pearly mussel populations in the Mississippi River from habitat alterations has been the main conservation effort. Surveys for additional populations have also been conducted in the larger inland rivers of Iowa.

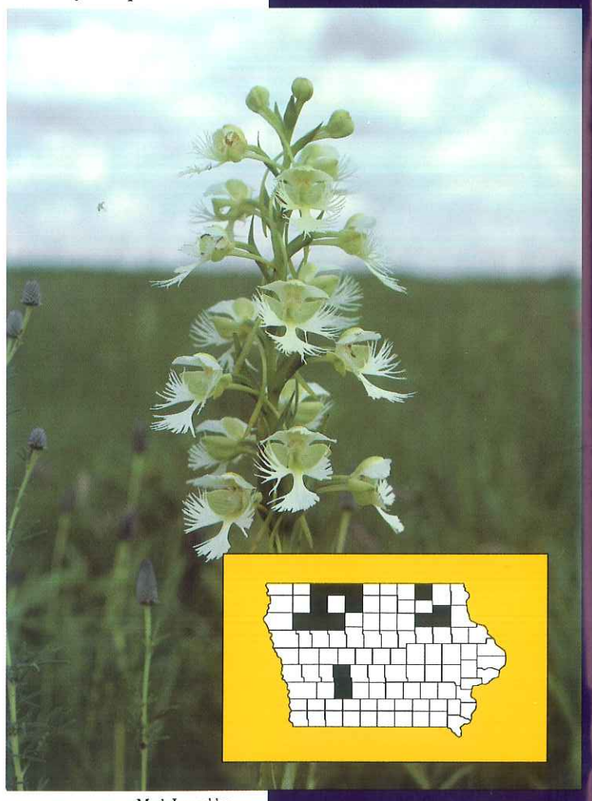
Western Prairie Fringed Orchid

Platanthera praeclara
Status: Threatened

Description: The western prairie fringed orchid is a single-stemmed plant with up to 25 white showy flowers. It may grow to nearly four feet tall, but is generally shorter. The white flowers have lower petals which are deeply three-lobed and fringed. Flowers may be up to one and one-half inches in the western prairie fringed orchid.

Habitat and Habits: The western prairie fringed orchid occurs in moist to wet native prairie areas. These areas include prairie remnants along roads and railroad rights-of-way. This orchid blooms from early June to late July in Iowa. A species of sphinx moth or hawk moth is the pollinator for the orchid. At dusk, the flower releases a scent which attracts the insect. The moth sips nectar from the flower and in the process, pollen may be deposited on the moth. The moth flies to another flower to gather more nectar and pollinates that flower with pollen from previously visited flowers. On small prairie remnants or in small populations of this orchid, pollination appears to be rare. There may not be enough flowering orchids to attract pollinators, or the prairie may be too small to harbor a good population of the appropriate insects. Thus, in some years few or no seeds are produced. In the short term, this may not be a problem as the orchid is a long-lived perennial. However, in the long term, the orchid population must reproduce by seed in order to insure genetic diversity and to colonize new sites. Vegetative reproduction (reproducing without seed) does occur, but is probably infrequent and insufficient to maintain a population over a long period of time.

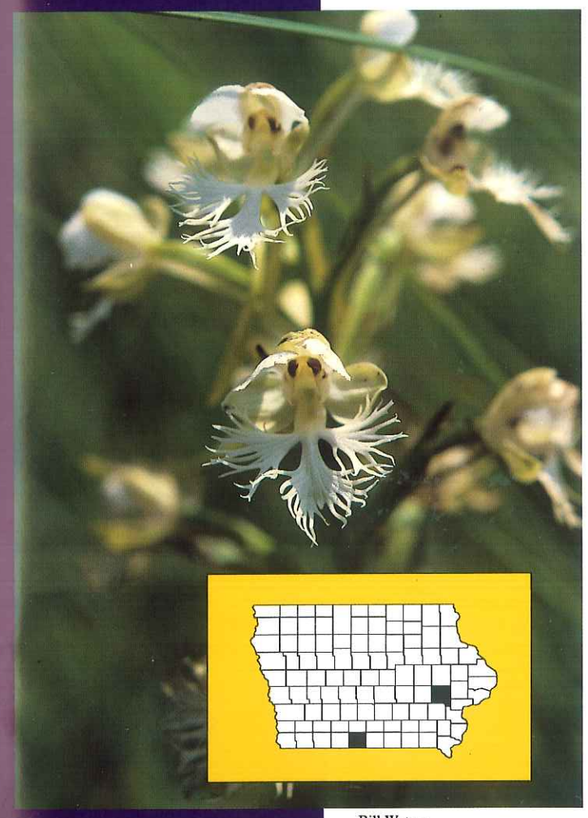
Distribution: The western prairie fringed orchid is restricted to the Midwest, the Great Plains and one Canadian province. In Iowa, it currently occurs on 15 sites in 12 counties. Six of the populations are on state preserves -- five owned by the Iowa Department of Natural Resources and one by The Nature Conservancy/Iowa Chapter.



Mark Leoschke

Conservation Efforts: Populations should be protected on private lands by working with landowners and testing management techniques such as the time and frequency of prescribed burns on public lands.

Reasons For Listing: The conversion of prairie for agriculture, roads and other developments has left less than one percent of the original prairie in Iowa. This loss of suitable habitat is the reason for the major population decline of the western prairie fringed orchid in Iowa.



Bill Watson

Eastern Prairie Fringed Orchid

Platanthera leucophaea
Status: Threatened

Description: The eastern prairie fringed orchid has smaller flowers -- up to one inch in length -- than the western prairie fringed orchid. There are a few other small differences between these two species, which until recently were considered a single species. Because these technical differences are small, it requires an expert to separate the species.

Habitat and Habits: These are essentially the same as those of the western prairie fringed orchid.

Distribution: This species is known in seven states east of the Mississippi River and in eastern Iowa. The eastern prairie fringed orchid currently occurs at two sites in Iowa.

Conservation Efforts: Landowner cooperation will be sought to insure protection of known populations of the orchid.

Reasons For Listing: Like the western prairie fringed orchid, the eastern has declined in Iowa due to the loss of suitable habitat.

Mead's Milkweed

Asclepias meadii
Status: Threatened

Description: Mead's milkweed is an inconspicuous member of the milkweed family. Its stems, leaves and flowers are green. The plants are normally about 20 inches tall, but can grow to nearly 40 inches. The plants have up to six pairs of two- to three-inch long, teardrop-shaped leaves attached directly to the stem. Each plant has from one to 26 flowers forming an umbel (a single inverted umbrella-shaped cluster). The fruits are up to three inches long and release seeds from mid-September to mid-October.

Habitat and Habits: Mead's milkweed occurs in moist tall grass prairies with a fairly high species diversity. Mead's milkweed flowers in late May to late June. The flowers are fragrant and are pollinated by bumble and digger bees. Plants may take five to eight years to reach flowering size. This species can reproduce vegetatively, but this may only maintain an existing population. Reproduction by seed is essential for colonizing new sites and increasing existing populations. However, this does not take place frequently in most populations. Many colonies are apparently too small (a typical size in Iowa is fewer than 20 plants) to attract pollinators, or the prairie remnant on which they occur may be too small to support a good population of pollinators.

Distribution: Mead's milkweed occurs in Illinois, Iowa, Kansas and Missouri. It formerly was also known in Indiana and Wisconsin. In Iowa, Mead's milkweed once occurred in at least five counties in the southern half of the state. Currently, the species occurs on five sites in four counties.

Conservation Efforts: Like other prairie species, Mead's milkweed is threatened because of the loss of prairie habitat. Protection efforts have concentrated on working with landowners to insure that these few remaining populations are protected.

Reasons For Listing: The conversion of prairie to other uses and overgrazing of pastures has nearly eliminated suitable habitat for this species.

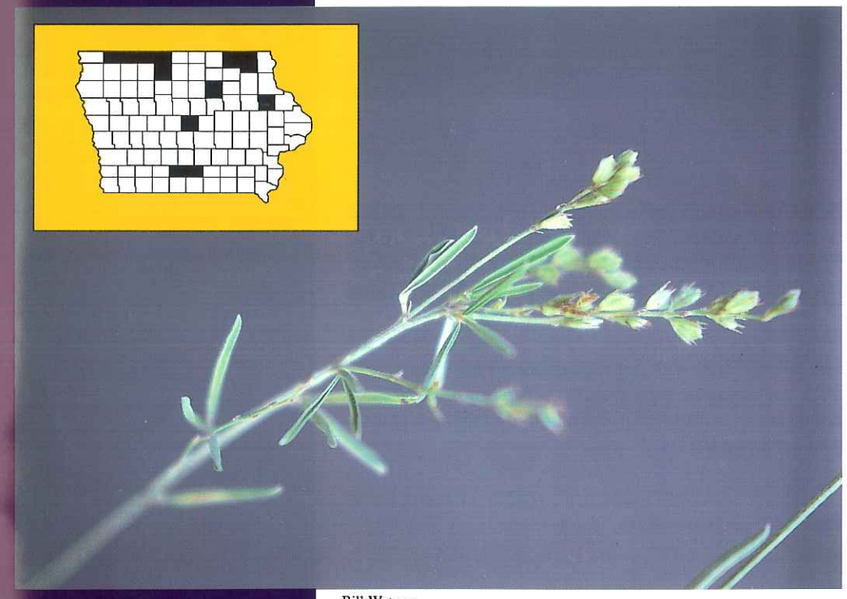
Prairie Bush Clover

Lespedeza leptostachya
Status: Threatened

Description: The prairie bush clover is a member of the bean or legume family. The plant has one or more stems which have compound leaves with three linear leaflets. It reaches a height of up to 39 inches. The pale pink or cream-colored flowers bloom from mid-July to early September. The plant often appears grayish or silver in color.

Habitat and Habits: Prairie bush clover occurs on native prairie areas and pastures that have retained many of the original prairie species. Prairie bush clover can reproduce vegetatively, but appears to reproduce primarily by seed. The seed can germinate in disturbed ground, making it possible for the species to maintain itself or even increase its population under some forms of grazing.

Distribution: Prairie bush clover is endemic to the Midwest as it is known only in Iowa, Illinois, Minnesota and Wisconsin. It currently occurs in 11 counties in Iowa.

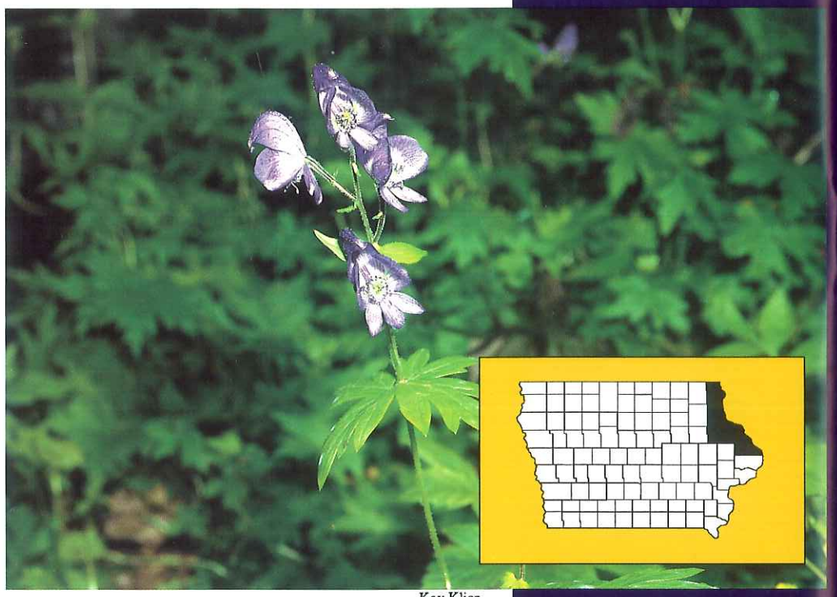


Conservation Efforts: By working with land owners, protection of known populations is continuing. Research on the effects of prescribed burning for prairies with prairie bush clover is being conducted.

Reasons For Listing: Prairie bush clover is threatened because of the loss of native prairie habitat in the Midwest.

Northern Wild Monkshood

Aconitum noveboracense
Status: Threatened



Kay Klier

Description: Northern wild monkshood grows from erect to reclining in form and up to 40 inches tall. The flowers are blue and occasionally white. The leaves are deeply parted.

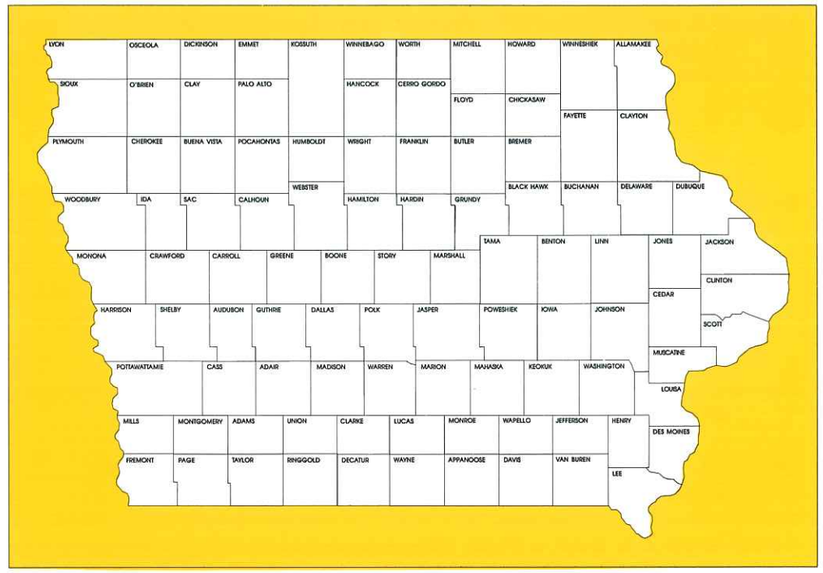
Habitat and Habits: Northern wild monkshood is typically found on shaded cliffs and talus slopes. These areas have cool to cold soil conditions, cold air drainage or cold groundwater flowage. These conditions maintain a modified microclimate with high humidity levels and relatively constant temperatures. The northern wild monkshood blooms between June and September in Iowa. Several species of bumblebees are pollinators of the northern wild monkshood in Iowa.

Distribution: Northern wild monkshood has a wide distribution, from northeastern Iowa and southwestern Wisconsin to northeastern Ohio and New York. Although the species has a large geographic distribution, it occurs at less than 100 locations. The majority of the populations of this plant are located in Iowa and Wisconsin. In Iowa, northern wild monkshood is found in northeastern counties.

Conservation Efforts: Acquisition of the locations with larger populations has been nearly completed by state, federal and private conservation organizations. Monitoring studies of several populations have been established and are continuing. Information from these studies is being used to determine the status of each population.

Reasons for Listing: Like the Iowa Pleistocene land snail, destruction of habitat has reduced the population and number of locations for this plant species.

COUNTY REFERENCE MAP



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